

REMARKS

Claims 1, 3 and 4 are currently pending in the present application. No amendments have been made by way of the present submission, thus, no new matter has been added.

Further, no new issues have been raised which would place the burden of additional search and/or consideration on the Examiner. Also, in the event that the present submission does not place the application into condition for allowance, entry thereof is respectfully requested as placing the application into better form for appeal.

In view of the following remarks, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Clarification of Typographical error in Response filed on February 6, 2007

Upon review, Applicants have discovered that the discussion of "Experiment A" at page 8 of the Response filed on February 6, 2007 contained an inadvertent typographical error. In this discussion, the metallocene compound should have properly been referred to as "diphenylmethylene(cyclopentadienyl)(2,7-di-*t*-buthylfluorenyl)zirconium dichloride" rather than "diphenylmethylene(cyclopentadienyl)(3,6-di-*t*-buthylfluorenyl)zirconium dichloride." The Declaration filed at the same time contained the correct recitation.

Interview conducted on February 13, 2009

Applicants take this opportunity to thank the Examiner for the courtesies extended during the interview conducted on February 13, 2009. During the interview, the comparative evidence of record was discussed in detail. The Examiner urged that additional testing be performed. Applicants have complied with such testing.

As discussed below, the results of Table 3 show that when the co-catalyst of (b-1) and (b-3) is used, the activity of the catalyst increases whether the aryl group which substitutes the bridged methylene has substituents or not. The results of Table 4 show that superior results are achieved by the use of a metallocene compound having tetrafluorenyl group whether the aryl group which substitutes the bridged methylene has substituents or not, and regardless of that the same type of co-catalyst of (b-1) and (b-2) are used. The results of Table 5 show that

superior activity of the catalyst is achieved by the use of a metallocene compound having tetrafluorenyl group even if the co-catalyst of (b-2) and (b-3) is used. To summarize the results of Tables 4 and 5, superior effects are attained by the use of a metallocene compound having tetrafluorenyl group whether the aryl group which substitutes the bridged methylene has substituents or not, or whether the co-catalyst of (b-1) and (b-3) or (b-2) and (b-3) is used.

Issue under 35 U.S.C. § 103(a)

Claims 1, 3 and 4 are rejected under 35 U.S.C. § 103(a) as being obvious over Hasegawa et al., U.S. 6,207,774 (hereinafter referred to as Hasegawa '774) alone or in view of Nakanaga et al., JP 05-320248 (hereinafter referred to as Nakanaga '246). Applicants respectfully traverse.

In order to further clarify the distinctions between the present invention and the disclosures of Hasegawa '774 and Nakanaga '246, Applicants have prepared a new Declaration under 37 C.F.R. § 1.132, which is attached hereto. Applicants are also attaching five (5) Tables, which serve to compile, in an easy to review format, comparative and inventive data. All of this data is already of record, whether by virtue of being present in the specification as filed, in the Declaration submitted on February 6, 2007, or in the new Declaration attached hereto. A short description of each Table follows (a full explanation of the relevance of each Table will follow below):

Table 1: Illustrates the differences between present independent claims 1 and 3 as compared to Hasegawa '774 and Nakanaga '246. The symbol "o" denotes the presence of a particular component while "-" denotes the absence of a particular component.

Table 2: Provides a compilation of testing results. Examples 1, 2, 14 and 22 are based upon the results found in the present specification as originally filed. Experiment A is based upon the results provided in the Declaration filed on February 6, 2007. Lastly, Experiments B, C and D are based upon the new Declaration being provided herewith. For ease of reference, the various Examples and Experiments are separated into four groups (e.g., (1), (2), (3) and (4)).

Table 3: For ease of reference, Table 3 reproduces the results of group (2) and group (4). When viewed in such a side-by-side format, the significance of the results is easier to understand.

Table 4: For ease of reference, Table 4 reproduces the results of group (1) and group (2). When viewed in such a side-by-side format, the significance of the results is easier to understand.

Table 5: For ease of reference, Table 5 reproduces the results of group (3) and group (4). When viewed in such a side-by-side format, the significance of the results is easier to understand.

Discussion of Significance of Test Results

1. Table 3

Applicants will first address the significance of the test results shown in Table 3. As shown in Table 3, example 22 and experiment B of group (2) uses the co-catalyst of (b-1) and (b-3). This corresponds to present claim 1. Experiments A and D of group (4) use the co-catalyst of (b-2) and (b-3) and correspond to Hasegawa '774.

Comparing group (2) with group (4), it is evident that when using the co-catalyst consisting of (b-1) and (b-3)(which corresponds to the present invention as recited in claim 1), the activity of the catalyst is superior as compared to that than that of using the co-catalyst of (b-2) and (b-3)(which corresponds to Hasegawa '774). This result shows that when the co-catalyst of (b-1) and (b-3) is used, the activity of the catalyst increases whether the aryl group which substitutes the bridged methylene has substituents or not.

Claim 1 has been restricted to a co-catalyst that consists essentially of (b-1) and (b-3). On the other hand, Hasegawa '774 and Nakanaga '246 fail to suggest or disclose that the activity of the catalyst increases with the co-catalyst of the combination of an organoaluminum oxy compound (b-1) and an organoaluminum compound (b-3). Therefore, the above-discussed superior results are completely unexpected in view of the disclosures of Hasegawa '774 and Nakanaga '246.

2. Table 4

Comparing the examples or experiments of group (1) with those of group (2), it is evident that group (1) shows superior activity of the catalyst as compared to that of group (2). Such superiority thus exists regardless of that the same type of co-catalyst of (b-1) and (b-2) are used. These results illustrate the superior results attained by the use of a metallocene compound having tetrafluorenyl group whether the aryl group which substitutes the bridged methylene has substituents or not.

3. Table 5

Comparing the examples or experiments of group (3) with those of group (4), it is evident that group (3) shows superior activity of the catalyst as compared to that of group (4). These results illustrate the superior effects attained by the use of a metallocene compound having tetrafluorenyl group even if the co-catalyst of (b-2) and (b-3) is used.

4. Summary concerning Tables 4 and 5

After comparing the examples or experiments of group (1) with (2) and group (3) with (4), it is clear that superior effects are attained by the use of a metallocene compound having tetrafluorenyl group whether the aryl group which substitutes the bridged methylene has substituents or not, or whether using the co-catalyst of (b-1) and (b-3) or (b-2) and (b-3). Such unexpectedly superior results rebut any hypothetical *prima facie* case of obviousness. Therefore, the Examiner is respectfully requested to withdraw this rejection.

In view of the above, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.


Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Craig A. McRobbie, Reg. No. 42,874, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachments: Tables 1-5 (5 pages)
Declaration under 37 C.F.R. § 1.132 (5 pages)

Table I

	(A)	(B)			R13, R14
	Fluorenyl group of Metallocene compound	(b-1) an organo- aluminum oxy- compound	(b-2) a compound which reacts with the bridged metallocene compound (A) to form an ion pair; e.g., borate	(b-3) an organo- aluminum compound	
claim 1	mono- to tetra- substituted	O	-	O	Aryl; substituted or non- substituted
claim 3	tetra-substituted	O	O	O	Aryl; substituted or non- substituted
Hasegawa '744	di-substituted	O	O	-	Phenyl; non-substituted
Nakanaga '246		O	-	O	-

Table 2

group		(A)		(B)			Yield	d	MFR ₂	Activity
		Fluorenyl group of Metallocene compound	(b-1) an organo- aluminum oxy-compound	(b-2) a compound which reacts with the bridged metallocene compound (A) to form an ion pair; e.g., borate	(b-3) an organo- aluminum compound	R13, R14				
(1)	Example 14	tetra-substituted	O		O	non-substituted	50.6	904	2.01	202.4
	Example 2	tetra-substituted	O		O	substituted	110.7	904	5.37	2656.8
(2)	Experiment B	di-substituted	O		O	non-substituted	40.6	902	3.25	81.2
	Example 22	di-substituted	O		O	substituted	32.5	904	1.21	130.0
(3)	Experiment C	tetra-substituted		O	O	non-substituted	35.2	902	2.47	70.4
	Example 1	tetra-substituted		O	O	substituted	59.7	898	1.03	119.4
(4)	Experiment A	di-substituted		O	O	non-substituted	40.6	899	1.66	47.2
	Experiment D	di-substituted		O	O	substituted	30.6	902	1.87	61.2

Table 3

group		(A)	(B)			Yield	d	MFR ₂	Activity
			(b-1) an organo-aluminum oxy-compound	(b-2) a compound which reacts with the bridged metallocene compound (A) to form an ion pair; e.g., borate	(b-3) an organo-aluminum compound				
(2)		Fluorenyl group of Metallocene compound			R13, R14	g	kg/m ³	g/10min	kg/mmol-Zr-hr
	Experiment B	di-substituted	O		non-substituted	40.6	902	3.25	81.2
(4)	Example 22	di-substituted	O		substituted	32.5	904	1.21	130.0
	Experiment A	di-substituted		O	non-substituted	40.6	899	1.66	47.2
	Experiment D	di-substituted		O	substituted	30.6	902	1.87	61.2

Table 4

group		(A)	(B)			Yield	d	MFR ₂	Activity
			(b-1) an organo-aluminum oxy-compound	(b-2) a compound which reacts with the bridged metallocene compound (A) to form an ion pair; e.g., borate	(b-3) an organo-aluminum compound				
(1)	Example 14	tetra-substituted	O		O	50.6	904	2.01	kg/mmol-Zr-hr
	Example 2	tetra-substituted	O		O	110.7	904	5.37	
(2)	Experiment B	di-substituted	O		O	40.6	902	3.25	
	Example 22	di-substituted	O		O	32.5	904	1.21	

Table 5

group		(A)	(B)			Yield	d	MFR ₂	Activity
			(b-1) an organo-aluminum oxy-compound	(b-2) a compound which reacts with the bridged metallocene compound (A) to form an ion pair; e.g., borate	(b-3) an organo-aluminum compound				
(3)	Experiment C	tetra-substituted		O	O	35.2	902	2.47	kg/mmol-Zr-hr
	Example 1	tetra-substituted		O	O	59.7	898	1.03	
(4)	Experiment A	di-substituted		O	O	40.6	899	1.66	47.2
	Experiment D	di-substituted		O	O	30.6	902	1.87	61.2